any symptom of disordered bowels afterwards occur, they can be very easily managed.

29. *Chemical Analysis of the Blood of Cholera Patients.*—Dr. **Thomas Thomson**, Regius Professor of Chemistry in the University of Glasgow, availed himself of the opportunity presented by the occurrence of cholera in Glasgow, to examine the composition of blood drawn from cholera patients in well-marked cases, and has published the results in the *Philosophical Magazine*, for May last. The specimens of blood analyzed by Dr. T. were obtained from patients in the cholera hospital in Albion street. The cases were well-marked, and generally the blood taken after the disease had made considerable progress, and in several of the specimens the blood was drawn when a pulse could scarcely be felt at the wrist. The blood, when it was received by Dr. T. was in the usual tin-plate cups employed in hospitals, into which it had been allowed to flow. Its colour was always a very dark red, almost black; much darker than venous blood usually is; and it did not acquire a scarlet colour, as blood from a person in health does when exposed to the air. It coagulated as usual, and separated into serum and crassamentum; but the serum was much less in quantity than it usually is. It was always, (except in one instance,) more or less tinged with colouring matter; often so deeply as to rival the colour of the crassamentum itself. The following table exhibits the specific gravity of various specimens of serum from different cholera patients.

	Sp. Gravity	
1.	1.0446.	This was pure yellow serum.
2.	1.0443.	Very slightly tinged red.
3.	1.052.	Very red.
4.	1.055.	Very red.
5.	1.057.	A very deep red.

A specimen taken out of the cavities of the heart after death was imperfectly coagulated. Being poured on a cotton cloth, a very dark red liquid dropped through, the specific gravity of which was 1.0938.

I got a specimen of blood from the cerebral vessels of another cholera patient after death: it was not coagulated; nor did it coagulate, though I allowed it to stand in an open vessel for thirty-six hours. After standing at rest for thirty-six hours, I observed that the uppermost portion was very fluid, and apparently watery; and though it had a deep red colour, it did not tinge a glass rod dipped into it. The portion at the bottom was thick and viscid, and stained strongly, sticking to every thing like tar. The specific gravity of the uppermost portion was 1.0533, while that of the undermost was 1.0699.

I got another specimen of blood from the heart; it was very imperfectly coagulated, and very viscid: its specific gravity was 1.1020. This blood did not by standing separate into two parts. The portion at the surface, after standing twenty-four hours, was as heavy as that at the bottom.

The great difference between the specific gravity of the serum of cholera blood and that of the serum of healthy blood is very remarkable. The mean specific gravity of the serum of healthy blood is 1.0287; while that of the five specimens of the serum of cholera blood stated above is 1.0506.

Cholera serum coagulates at the usual temperature, namely, when heated to 159°.

The ratio between the serum and crassamentum in cholera blood was found to be as follows:—

Serum - - - - - - - - - - -	33.2
Crassamentum - - - - - - -	66.8
	100.0

If in healthy blood we suppose the serum to amount to 33.2, the crassamentum will only be 27.16; thus it appears, that in cholera blood, the crassamentum is more than twice as much as in healthy blood.

The following are the constituents of two specimens of cholera blood subjected to analysis.

1. Blood, No. 1.

Albumen	4.856
Fibrin	0.378
Colouring matter, with albumen	27.450
Salts	1.195
Water	66.121
	100.000

2. Blood, No. 4.

Albumen	6.305
Fibrin	1.340
Colouring matter, with albumen	23.160
Salts	1.255
Water	67.940
	100.000

To enable us to compare this blood with that of persons in health, the following Table, exhibiting the constituents of healthy blood, will be of use.

Albumen	8.47
Fibrin	4.45
Colouring matter, with albumen	7.39
Salts	1.30
Water	78.39
	100.00

The following Table will show the proportions of the constituents on the supposition that the water in each amounts to 100.

	Healthy Blood.	Cholera Blood.	
		No. 1.	No. 4.
Water	100	100	100
Albumen	10.79	7.34	9.28
Fibrin	5.67	0.57	1.97
Colouring matter, with albumen	9.42	41.51	34.08
Salts	1.65	1.81	1.85
	127.53	151.23	147.18

We see that the albumen is less abundant in the cholera blood than in healthy blood. But probably this excess in healthy blood is more apparent than real. It is not in our power to free the crassamentum completely from the serum. In my experiments, the crassamentum was simply left on a cloth till all the serum that would drop out had separated. It is clear, that by this process, more serum would be left than if the crassamentum had been dried on blotting paper. Now, this portion of serum would contain albumen, which would be added to the colouring matter, and would have the effect of apparently increasing its quantity. How far the quantity of albumen wanting to make up the quantity in healthy blood, amounting in No. 1. to 3.45, and in No. 4. to 1.51, may be accounted for by this circumstance, it would be hazardous to conjecture; but certainly no inconsiderable portion of it must be owing to this circumstance.

The deficiency of fibrin in cholera blood is very remarkable, and struck me very forcibly. The fibrin in the cholera blood No. 1. is only about 1-10th of that in healthy blood: the quantity in the blood No. 4. is nearly four times as great; but it is still only about the third of the quantity which exists in healthy blood.

In almost all cases a polypus is found in the heart of those who have died of cholera: this polypus has a buff colour, and consists of pure fibrous fibrin. Dried artificially, it assumes a reddish colour, as happens to fibrin in general. One of these polypi, which I freed from colouring matter by washing, weighed after being dried in a heat not exceeding 200°, 22.12 grains. It would appear from this, that fibrin is disposed to leave the blood of cholera patients, either during life, or at least soon after death: 22.12 grains constitute but an inconsiderable portion of the fibrin of the whole blood. If we admit a full-grown individual of the mean size to contain thirty-pounds of blood, the whole fibrin in that fluid must amount to 1.7 pound, or 11.900 grains: but it is possible that similar polypi may be contained in the large blood-vessels. This, however, was not verified by dissection; for the blood contained in the sinuses of the brain in one case, was found quite liquid, and did not coagulate, though it was almost as black as ink.

The great excess of colouring matter in cholera blood is no less remarkable than the deficiency of fibrin. If we make allowance for the albumen and salts still contained in the colouring matter, and take a mean of the quantity of colouring matter in Nos. 1. and 4, we shall find it to be little short of four times the quantity of colouring matter in healthy blood. Whether this increased quantity of colouring matter may be partially accounted for by any alteration in the fibrin, such as to make it soluble in water, it is impossible to say. But be this as it may, it is obvious that there is a great increase of colouring matter: for the fibrin and colouring matter of healthy blood added together, do not amount to so much as one-half of the colouring matter in cholera blood.

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30. *Extracts from the Reports of the Cholera at Danzig.* By John Hamett, M. D.—"Passing over subordinate features of the epidemic, I shall limit my descriptions here to the three principal forms of it, viz.

1. "The rapid and severe cases of fatal cholera.
2. "The protracted cases of fatal cholera; and
3. "Those less severe, which proved favourable.

1. "In most rapid and severe cases of fatal cholera, the patient was suddenly seized with sickness or pain at stomach, occasional pain, or feeling of weight and uneasiness in the hypochondria, the right hypochondrium especially, giddiness, prostration, great thirst and craving for cold drinks, a cold sweat that quickly became colliquative and clammy; at times coldness alone, at others coldness and dampishness of the body—but never with shivering; the pulse was frequent but not hard, and soon became exceedingly reduced; the hands and features somewhat shrunk; the tongue was foul, unnaturally moist, and occasionally tremulous; the voice subdued; the eyes heavy and suffused, and the sight dim. These primary symptoms were in general either accompanied, or immediately followed, by retching and vomiting, and a peculiar watery diarrhœa, that often, however, proved irregular in the order of attack, occasionally even with respect to each other, and oftentimes severe, in hot, close, and electrical weather especially; griping pains in the abdomen; painful contractions of the muscles at the umbilicus; suppression of the secretion of urine, and occasional pain in the region of the bladder. Cramps in general followed the retching and vomiting, and in most instances invaded the calves of the legs at first; in their attacks of other parts of the extremities they proved irregular, seizing first the forearms, calves and forearms, hands and fingers, toes and feet, or hands, feet, and calves, in different instances, indiscriminately; occasionally they mounted up the thighs, but seldom attacked the trunk. Men rarely escape them, women frequently, and children generally.